Appendix A: Handling of federal and selected state legislation and regulations in the AEO

Residential sector

	Legislation	Brief description	AEO handling	Basis
A.	National Appliance Energy Conservation Act of 1987 (NAECA87)			Public Law 100-12
	a. Appliance standards	Requires Secretary of Energy to set minimum efficiency standards for various appliance categories with periodic updates	Include categories represented in the AEO residential sector forecast	Federal Register Notice of Final Rulemaking
	b. Room air conditioners	Sets standards for room air conditioners in 2014	Require new purchases of room air conditioners to meet the standard	Federal Register Notice of Final Rulemaking
	c. Central air conditioners and heat pumps	Sets standards for central air conditioners in 2015	Require new purchases of other air conditioners to meet the standard	Federal Register Notice of Final Rulemaking
	d. Water heaters	Sets standards for water heaters in 2015	Require new purchases of water heaters to meet the standard	Federal Register Notice of Final Rulemaking
	e. Refrigerators and freezers	Sets standards for water heaters in 2014	Require new purchases of refrigerators/freezers to meet the standard	Federal Register Notice of Final Rulemaking
	f. Dishwashers	Sets standards for dishwasher in 2010	Require new purchases of dishwashers to meet the standard	Federal Register Notice of Final Rulemaking
	g. Fluorescent lamp ballasts	Sets standards for fluorescent lamp ballasts in 2014	Require new purchases of fluorescent lamp ballasts to meet the standard	Federal Register Notice of Final Rulemaking
	h. Clothes washers	Sets standards for clothes washers in 2011	Require new purchases of clothes washers to meet the standard	Federal Register Notice of Final Rulemaking
	i. Furnaces	Sets standards for furnaces in 2013	Require new purchases of furnaces to meet the standard	Federal Register Notice of Final Rulemaking
	j. Clothes dryers	Sets standards for clothes dryers in 2015	Require new purchases of clothes dryers to meet the standard	Federal Register Notice of Final Rulemaking
	k. Boilers	Sets standards for boilers in 2021	Require new purchases of boilers to meet the standard	Federal Register Notice of Final Rulemaking
B.	Energy Policy Act of 1992 (EPACT92)			Public Law 102-486
	a. Building codes	For the International Energy Conservation Code 2006 (IECC 2006), specifies whole house efficiency minimums	Assume that all states adopt the IECC 2006 code by 2017	Trend of states' adoption of codes, allowing for lead times for enforcement and builder compliance

	Legislation	Brief description	AEO handling	Basis
	b. Various lighting types	Sets standards for various lighting types in 2012	Require new purchases of various lighting types to meet the standards	Federal Register Notice of Final Rulemaking
C.	Energy Policy Act of 2005 (EPACT05)			Public Law 109-58
	a. Torchiere lamp standard	Sets standard for torchiere lamps in 2006	Require new purchases of torchiere bulbs to meet the standard	Federal Register Notice of Final Rulemaking
	b. Compact fluorescent lamp standard	Sets standard for fluorescent lamps in 2006	Require new purchases of compact fluorescent bulbs to meet the standard	Federal Register Notice of Final Rulemaking
	c. Ceiling fan light kit standard	Sets standard for ceiling fans and ceiling fan light kits in 2019	Reduce lighting electricity consumption by appropriate amount	Number of ceiling fan shipments and estimated kWh savings per unit determine overall savings
	d. Dehumidifier standard	Sets standard for dehumidifiers in 2019	Reduce dehumidifier electricity consumption by appropriate amount	Number of dehumidifier shipments and estimated kWh savings per unit determine overall savings
	e. Energy-efficient equipment tax credit	Provides tax credits to purchasers of certain energy-efficient equipment in 2006 and 2007	Reduce cost of applicable equipment by specified amount	Federal Register Notice of Final Rulemaking
	f. New home tax credit	Provides $1,000 or $2,000 tax credit to builders if they construct homes that are 30% or 50%, respectively, more efficient than code in 2006 and 2007	Reduce shell package cost for these homes by specified amount	Cost reductions to consumers are assumed to be 100% of the builder's tax credit
	g. Energy-efficient appliance tax credit	Provides tax credits to producers of energy-efficient refrigerators, dishwashers, and clothes washers for each unit they produce that meets certain efficiency specifications	Assume that the cost savings are passed on to the consumer, reducing the price of the appliance by the specified amount	Cost reductions to consumers are assumed to be 100% of the producer's tax credit
D.	Energy Independence and Security Act of 2007 (EISA07)			Public Law 110-140
	a. General service incandescent lamp standard	Require less wattage for bulbs in 2012–2014 and 2020	Reduce wattage for new bulbs by 28% in 2013 and 67% in 2020; incandescent lamps not expected to meet 2020 standard	Federal Register Notice of Final Rulemaking
	b. External power supply standard	Sets standards for external power supplies in 2016	Reduce external power supply electricity consumption by appropriate amount	Number of shipments and estimated kWh savings per unit determine overall savings
	c. Manufactured housing code	Require manufactured homes to meet latest IECC in 2011	Require that all manufactured homes shipped after 2011 meet the IECC 2006	Federal Register Notice of Final Rulemaking
	d. Miscellaneous refrigeration products	Sets minimum efficiency standards for wine coolers in 2019	Reduce other electricity consumption by appropriate amount	Federal Register Notice of Final Rulemaking

	Legislation	Brief description	AEO handling	Basis
E.	Energy Improvement and Extension Act of 08 (EIEA08)			Public Law 110-343
	a. Energy-efficient equipment tax credit	Purchasers of certain energy-efficient equipment can claim tax credits	Reduce the cost of applicable equipment by specified amount	Federal Register Notice of Final Rulemaking
	b. Energy-efficient appliance tax credit	Producers of energy-efficient refrigerators, clothes washers, and dishwashers receive tax credits for each unit they produce that meets certain efficiency specifications, subject to an annual cap	Assume that the cost savings are passed on to the consumer, reducing the price of the appliance by the specified amount	Cost reductions to consumer are assumed to be 100% of the producer's tax credit
F.	American Recovery and Reinvestment Act of 2009 (ARRA09)			Public Law 111-5
	a. Energy-efficient equipment tax credit	Increases cap of energy-efficient equipment specified under Section E(a) above to $1,500; removes cap for solar PV, wind, and ground-source (geothermal) heat pumps	Reduce the cost of applicable equipment by specified amount	Federal Register Notice of Final Rulemaking
	b. Weatherization and State Energy Programs	Increases funding for weatherization and other programs to improve the energy efficiency of existing housing stock	Apply annual funding amount to existing housing retrofits; base savings for heating and cooling on $2,600 per-home investment as specified in weatherization program evaluation	Federal Register Notice of Final Rulemaking
G.	Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010			Public Law 111-312
	a. Energy-efficient equipment tax credit	Extends tax credits for some energy-efficient equipment, generally to EISA07 amounts	Reduce the cost of applicable equipment by specified amount	
H.	Clean Power Plan (issued under Section 111(d) of the Clean Air Act)			
	a. Incentives for energy efficient residential technologies	Allows states to comply with emission standards by incentivizing residential purchase of energy efficient technology and building shells	Apply subsidies to energy efficient technologies and building shells and forward subsidy cost to electric utilities	Federal Register Notice of Final Rulemaking
I.	Consolidated Appropriations Act of 2016 (H.R.2029)			Public Law 114-113
	a. Residential solar investment tax credit	Extends the EPACT05 30% investment tax credit for solar property through 2019, decreasing to 26% in 2020, 22% in 2021, and expiring after 2021	Incorporate tax credit into cash flow for solar generation systems; reduce investment cost for solar water heaters by appropriate percentage	Federal Register Notice of Final Rulemaking

Commercial sector

	Legislation	Brief description	AEO handling	Basis
A.	National Appliance Energy Conservation Act of 1987 (NAECA87)	Requires Secretary of Energy to set minimum efficiency standards for various appliance categories with periodic updates	Include categories represented in the AEO commercial sector forecast	Public Law 100-12
	a. Room air conditioners	Sets standards for room air conditioners in 2014	Change room air conditioner efficiency, including metric, from 9.8 Energy Efficiency Ratio (EER) to 10.9 Combined Energy Efficiency Ratio (CEER) in 2014	Federal Register Notice of Final Rulemaking
	b. Other residential-size air conditioners (<5.4 tons)	Sets standards for central air conditioners in 2015	Set central air conditioning and heat pump efficiency to 10 SEER before 2006, 13 SEER in 2006, and 14 SEER in 2015	Federal Register Notice of Final Rulemaking
	c. Fluorescent lamp ballasts	Sets standards for fluorescent lamp ballasts in 2014	Set standard of 0.90 power factor and minimum efficacy factor for F40 and F96 lamps based on lamp size and wattage, increasing to higher efficacy factor in 2005 that limits purchases to electronic ballasts; Efficacy expanded to T8 and T5 ballasts in 2012	Federal Register Notice of Final Rulemaking
B.	Energy Policy Act of 1992 (EPACT92)			Public Law 102-486
	a. Building codes	Directs DOE to participate in development of model energy codes and help states adopt and implement more efficient energy codes	Incorporate into commercial building shell assumptions; represent efficiency of new shell relative to existing shell in shell efficiency indices; assumes shell efficiency improves 6.9% and 15.0% by 2040 for existing buildings and new construction, respectively	Based on Science Applications International Corporation commercial shell indices for 2003 developed for EIA in 2008 and 2011
	b. Window labeling	Helps consumers determine which windows are more energy efficient	Incorporate into commercial building shell assumptions; represent efficiency of new shell relative to existing shell in shell efficiency indices; assume shell efficiency improves 6.9% and 15.0% by 2040 for existing buildings and new construction, respectively	Based on Science Applications International Corporation commercial shell indices for 2003 developed for EIA in 2008 and 2011
	c. Commercial furnaces and boilers	Sets standards for furnaces in 2023	Set gas-fired furnace and boiler thermal efficiency to 80%; set oil furnace thermal efficiency to 81%; set oil boiler thermal efficiency to 83%	Federal Register Notice of Final Rulemaking

Legislation	Brief description	AEO handling	Basis
d. Commercial air conditioners and heat pumps	Sets standards for air conditioners and heat pumps in 2018 and 2023	Set air-source air conditioners and heat pumps less than 135,000 Btu to 8.9 EER, greater than 135,000 Btu to 8.5 EER in 2001; metric changes to Integrated EER (IEER) for 2018 and 2023 standards	Federal Register Notice of Final Rulemaking
e. Commercial water heaters	Sets standards for water heaters in 2003	Set gas and oil thermal efficiency to 78%, increasing to 80% thermal efficiency for gas units in 2003	Federal Register Notice of Final Rulemaking
f. Lamps	Sets standards for various lighting types in 2012	Set incandescent efficacy to 16.9 lumens per watt and fluorescent efficacy to 75 and 80 lumens per watt for 4- and 8-foot lamps, respectively	
g. Electric motors	Specifies minimum efficiency levels for a variety of motor types and sizes	Model end-use services at the equipment level (motors contained in new equipment must meet the standards)	Federal Register Notice of Final Rulemaking
h. Federal energy management	Requires federal agencies to reduce energy consumption 20% by 2000 relative to 1985	Use the 10-year Treasury note rate for federal share of the commercial sector as a discount rate in equipment purchase decisions	Superseded by Executive Order 13123, EPACT05, and EISA07
i. Business investment tax credit for solar energy property	Provides a permanent 10% investment tax credit for solar property	Incorporate tax credit into cash flow for solar generation systems; reduced investment cost for solar water heaters by 10%	Federal Register Notice of Final Rulemaking
C. Executive Order 13123: Greening the Government Through Efficient Energy Management	Requires federal agencies to reduce energy consumption 30% by 2005 and 35% by 2010 relative to 1985 through cost-effective life-cycle energy measures	Use the 10-year Treasury note rate for federal share of the commercial sector as a discount rate in equipment purchase decisions	Superseded by EPACT05 and EISA07

	Legislation	Brief description	AEO handling	Basis
D.	Energy Policy Act of 2005 (EPACT05)			Public Law 109-58
	a. Commercial package air conditioners and heat pumps	Sets minimum efficiency levels in 2010	Set air-cooled air conditioners/ heat pumps less than 135,000 Btu to 11.2/ 11.0 EER and heating Coefficient of Performance (COP) of 3.3 and greater than 135,000 Btu to 11.0/ 10.6 EER and heating COP of 3.2	Federal Register Notice of Final Rulemaking
	b. Commercial refrigerators, freezers, and automatic icemakers	Sets minimum efficiency levels in 2010 and 2017 (refrigerators and freezers)	Remove refrigerator and freezer systems that do not meet standard from technology choice	Federal Register Notice of Final Rulemaking
	c. Lamp ballasts	Bans manufacture or import of mercury vapor lamp ballasts in 2008; sets minimum efficacy level for T12 energy saver ballasts in 2009 and 2010 based on application	Remove mercury vapor lighting system from technology choice menu in 2008; set minimum efficacy of T12 ballasts at specified standard levels	Federal Register Notice of Final Rulemaking
	d. Compact fluorescent lamps	Sets standard for medium base lamps to ENERGY STAR specifications in 2006	Set efficacy level of compact fluorescent lamps at required level	Federal Register Notice of Final Rulemaking
	e. Illuminated exit signs and traffic signals	Sets standards to ENERGY STAR specifications in 2006	Reduce miscellaneous electricity consumption by appropriate amount	Number of shipments, share of shipments that currently meet standard, and estimated kWh savings per unit determine overall savings
	f. Distribution transformers	Sets standard as National Electrical Manufacturers Association Class I Efficiency levels in 2007, with an update effective in 2016	Include effects of standard in estimating the share of miscellaneous electricity consumption attributable to transformer losses	Federal Register Notice of Final Rulemaking
	g. Pre-rinse spray valves	Sets maximum flow rate to 1.6 gallons per minute in 2006	Reduce energy use for water heating by appropriate amount	Number of shipments, share of shipments that currently meet standard, and estimated kWh savings per unit determine overall savings
	h. Federal energy management	Requires federal agencies to reduce energy consumption 20% by 2015 relative to 2003 through cost-effective life-cycle energy measures	Use the 10-year Treasury note rate as a discount rate for federal share of the commercial sector as a discount rate in equipment purchase decisions as opposed to adding risk premiums to the 10-year Treasury note rate to develop discount rates for other commercial decisions	Superseded by EISA07

	Legislation	Brief description	AEO handling	Basis
	i. Business investment tax credit for fuel cells and microturbines	Provides a 30% investment tax credit for fuel cells and a 10% investment tax credit for microturbines installed in 2006 through 2016	Incorporate tax credit into cash flow for fuel cells and microturbines	Extended through 2008 by Public Law 109-432 and through 2016 by EIEA08
	j. Business solar investment tax credit	Provides a 30% investment tax credit for solar property installed in 2006 through 2016	Incorporate tax credit into cash flow for solar generation systems; reduce investment cost for solar water heaters by 30%	Extended through 2008 by Public Law 109-432, through 2016 by EIEA08, through 2019 then phase-out to 10% by Public Law 114-113
E.	Energy Independence and Security Act of 2007 (EISA07)			
	a. Commercial walk-in coolers and walk-in freezers	Requires use of specific energy efficiency measures in equipment manufactured in or after 2009, with an update effective in 2017	Remove walk-in refrigerator and freezer systems that do not meet standard from technology choice	Federal Register Notice of Final Rulemaking
	b. Incandescent and halogen lamps	Sets maximum allowable wattage based on lumen output starting in 2012	Remove incandescent and halogen general service lighting systems that do not meet standard from technology choice menu in 2012	Federal Register Notice of Final Rulemaking
	c. Metal halide lamp ballasts	Sets minimum efficiency levels for metal halide lamp ballasts starting in 2009, with an update effective in 2017	Remove metal halide lighting systems that do not meet standard from technology choice menu; set minimum system efficiency to include specified standard levels for ballasts based on type	Federal Register Notice of Final Rulemaking
	d. Federal use of energy-efficient lighting	Requires use of energy-efficient lighting fixtures and bulbs in federal buildings to the maximum extent possible starting in 2009	Increase proportion of sector using 10-year Treasury note rate for lighting purchase decisions to represent all existing and new federal floorspace in 2009	Federal Register Notice of Final Rulemaking
	e. Federal energy management	Requires federal agencies to reduce energy consumption per square foot 30% by 2015 relative to 2003 through cost-effective life-cycle energy measures	Uses the 10-year Treasury note rate for federal share of the commercial sector as a discount rate in equipment purchase decisions as opposed to adding risk premiums to the 10-year Treasury note rate to develop discount rates for other commercial decisions	Federal Register Notice of Final Rulemaking

	Legislation	Brief description	AEO handling	Basis
F.	Energy Improvement and Extension Act of 2008 (EIEA08)			Public Law 110-343
	a. Business solar investment tax credit	Extends the EPACT05 30% investment tax credit for solar property through 2016	Incorporate tax credit into cash flow for solar generation systems; reduce investment cost for solar water heaters by 30%	Federal Register Notice of Final Rulemaking
	b. Business investment tax credit for fuel cells and microturbines	Extends the EPACT05 30% investment tax credit for fuel cells and 10% investment tax credit for micro-turbines through 2016	Incorporate tax credit into cash flow for fuel cells and microturbines	Federal Register Notice of Final Rulemaking
	c. Business investment tax credit for CHP systems	Provides a 10% investment tax credit for CHP systems installed in 2009 through 2016	Incorporate tax credit into cash flow for CHP systems	Federal Register Notice of Final Rulemaking
	d. Business investment tax credit for small wind turbines	Provides a 30% investment tax credit for wind turbines installed in 2009 through 2016	Incorporate tax credit into cash flow for wind turbines	Federal Register Notice of Final Rulemaking
	e. Business investment tax credit for geothermal heat pumps	Provides a 10% investment tax credit for geothermal heat pump systems installed in 2009 through 2016	Reduce investment cost for geothermal heat pump systems by 10%	Federal Register Notice of Final Rulemaking
G.	American Recovery and Reinvestment Act of 2009 (ARRA09)			Public Law 111-5
	a. Business investment tax credit for small wind turbines	Removes the cap on the EIEA08 30% investment tax credit for wind turbines through 2016	Incorporate tax credit into cash flow for wind turbines	Federal Register Notice of Final Rulemaking
	b. Stimulus funding to federal agencies	Provides funding for efficiency improvement in federal buildings and facilities	Increase the proportion of sector using the 10-year Treasury note rate for purchase decisions to include all existing and new federal floorspace in years stimulus funding is available to account for new, replacement, and retrofit projects; assume some funding is used for solar PV, small wind turbine, and fuel cell installations	Federal Register Notice of Final Rulemaking

	Legislation	Brief description	AEO handling	Basis
	c. State Energy Program funding and energy efficiency and conservation block grants	Provides grants for state and local governments for energy efficiency and renewable energy purposes (State Energy Program funding conditioned on enactment of new building codes)	Increase the proportion of sector using the 10-year Treasury note rate for purchase decisions to include all public buildings in years stimulus funding is available; increase new building shell efficiency to 10% better than 2003 by 2018 for improved building codes; assume some funding is used for solar PV and small wind turbine installations	Federal Register Notice of Final Rulemaking
	d. Funding for smart grid projects	Provides funding for smart grid demonstration projects	Assume smart grid technologies cause consumers to become more responsive to electricity price changes by increasing the price elasticity of demand for certain end uses	Federal Register Notice of Final Rulemaking
H.	Clean Power Plan (issued under Section 111(d) of the Clean Air Act)			
	a. Incentives for energy efficient commercial technologies	Allows states to comply with emission standards by incentivizing commercial purchase of energy efficient technology	Apply subsidies to energy efficient technologies and forward subsidy cost to electric utilities	Federal Register Notice of Final Rulemaking
I.	Consolidated Appropriations Act of 2016 (H.R.2029)			Public Law 114-113
	a. Business solar investment tax credit	Extends the EPACT05 30% investment tax credit for solar property through 2019, decreasing to 26% in 2020, 22% in 2021, then remaining at 10% in 2022 and after	Incorporate tax credit into cash flow for solar generation systems; reduce investment cost for solar water heaters by appropriate percentage	Federal Register Notice of Final Rulemaking
J.	California Global Warming Solutions Act of 2006: emissions limit (SB-32)			
	a. Limits California greenhouse gas	Limit equivalent to the statewide greenhouse gas emissions level in 1990 to be achieved by 2020	Additional subsidies for energy efficient technologies for the Pacific Census division; all increase in efficiency is attributed to California	Apply assumptions of SB-350 as it sets a goal of doubling energy efficiency savings targets by 2030

Industrial sector

	Legislation	Brief description	AEO handling	Basis
A.	Energy Policy Act of 1992 (EPACT92)			
	a. Motor efficiency standards	Specifies minimum efficiency levels for a variety of motor types and sizes	Not modeled because participation is voluntary; actual reductions will depend on future, unknown commitments	EPACT1992, Section 342 (42 USC 6313)
	b. Boiler efficiency standards	Specifies minimum combustion efficiency for package boilers larger than 300,000 Btu/hr. Natural Gas boilers: 80 percent. Oil boilers: 83 percent	All package boilers are assumed to meet the efficiency standards. While the standards do not apply to field-erected boilers, which are typically used in steam-intensive industries, we assume they meet the standard in the AEO	Standard specified in EPACT92. 10 CFR 431
B.	Clean Air Act Amendments (CAAA90)			
	a. Process emissions	Numerous process emissions require-ments for specified industries and/or activities	Not modeled because they are not directly related to energy projections	CAAA90, 40 CFR 60
	b. Emissions related to hazardous/toxic substances	Numerous emissions requirements relative to hazardous and/or toxic substances	Not modeled because they are not directly related to energy projections	CAAA90, 40 CFR 60
	c. Industrial SO2 emissions	Sets annual limit for industrial SO2 emissions at 5.6 million tons; If limit is reached, specific regulations could be implemented	Industrial SO2 emissions are not projected to reach the limit (Source: EPA, National Air Pollutant Emissions Trends:1990-1998, EPA-454/R-00-002, March 2000, p. 4-3)	CAAA90, Section 406 (42 USC 7651)
	d. Industrial boiler hazardous air pollutants	Requires industrial boilers and process heaters to conduct periodic tune-ups or meet emissions limits on HAPs to comply with the Maximum Achievable Control Technology (MACT) Floor; Regulations finalized December 2012	Costs of compliance that are not offset by efficiency gains (non-recoverable costs) modeled as an additional capital cost in the Macroeconomic Activity Module (MAM) based on proposed regulations as of September 2012	U.S. Environmental Protection Agency, National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers, Major Source (40 CFR 63, Subpart DDDDD) and Area Source (40 CFR 63 Part JJJJJJ)
	e. Emissions from stationary diesel engines	Requires engine manufacturers to meet the same emission standards as nonroad diesel engines; Fully effective in 2011	New stationary engines meet the standards	40 CFR Parts 60, 85, 89, 94, 1039, 1065, and 1068

	Legislation	Brief description	AEO handling	Basis
C.	Energy Policy Act of 2005 (EPACT05)			
	a. Physical energy intensity	Voluntary commitments to reduce physical energy intensity by 2.5 percent annually for 2007-2016	Not modeled because participation is voluntary; actual reductions will depend on future, unknown commitments	EPACT2005, Section 106 (42 USC 15811)
	b. Mineral components of cement of concrete	Increase in mineral component of federally procured cement or concrete	Not modeled	EPACT2005, Section 108 (42 USC 6966)
	c. Tax credits for coke oven	Provides a tax credit of $3.00 per barrel oil equivalent, limited to 4000 barrels per day average. Applies to most producers of coal coke or coke gas	Not modeled because no impact on U.S. coke plant activity is anticipated	EPACT2005, Section 1321 (26 USC 45K)
D.	The Energy Independence and Security Act of 2007 (EISA2007)			
	a. Motor efficiency standards	Supersedes EPACT1992 Efficiency Standards no later than 2011	Motor purchases must meet the EPAct1992 standards through 2010; afterwards purchases must meet the EISA2007 standards. Motors manufactured after June 1, 2016 are required to comply with higher efficiency standards	EISA2007 10 CFR Part 431 as amended
E.	The Energy Improvement and Extension Act of 2008 (EIEA2008)			
	e. Combined heat and power tax incentive	Provides an investment tax credit for up to 15 megawatts of capacity in combined heat and power systems of 50 megawatts or less through 2016	Costs of systems adjusted to reflect the credit	EIEA2008, Title I, Sec. 103

Transportation sector

	Legislation	Brief description	AEO handling	Basis
A.	Energy Policy Act of 1992 (EPACT92)	Increases the number of alternative fuel vehicles and alternative fuel use in federal, state, and fuel-provided fleets	Assumes federal, state and fuel-provided fleets meet the mandated sales requirements	Energy Policy Act of 1992, Public Law 102-486-Oct. 24, 1992
B.	California's Advanced Clean Cars program (ACCP) includes Zero Emission Vehicle (ZEV) Program and the Low Emission Vehicle Program (LEVP)	The Clean Air Act provides the state of California the authority to set vehicle criteria emission standards that exceed federal standards; A part of that program mandates the sale of zero-emission vehicles by manufacturers; Other nonattainment states are given the option of opting into the federal or California emission standards	Incorporates the ACCP which includes the Low Emission Vehicle Program as amended on March 22, 2012, and the Zero Emission Vehicle Program from July 10, 2014. Assumes the states of California, Connecticut, Maine, Massachusetts, New Jersey, New York, Rhode Island, Vermont, Oregon, and Washington adopt the ZEV Program and that the proposed sales requirements for hybrid, electric, and fuel cell vehicles are met	Section 177 of the Clean Air Act, 42 USC sec. 7507 (1976) and CARB, California Exhaust Emissions Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, August 4, 2005, as amended March 22, 2012; Zero-Emission Vehicle Standards for 2018 and subsequent model year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, July 10, 2014
C.	Corporate Average Fuel Economy (CAFE) Standard for Light Duty Vehicles	Requires manufacturers to produce vehicles that meet a minimum federal average fuel economy standard, promul-gated jointly for model years 2012-2016 and 2017-2025 with an average greenhouse emissions standard; cars and light trucks are regulated separately	CAFE standards are increased for model years 2011 through 2016 to meet the final CAFE rulemakings for model year 2011 and 2012 to 2016, respectively. CAFE standards are increased for model years 2017 to 2025 to meet final CAFE joint rulemakings for model year 2017 to 2021 and to meet augural CAFE standards for model year 2022 to 2025, which will undergo a midterm evalua-tion to finalize. CAFE standards are held constant through the end of the projection	Energy Policy Conservation Act of 1975; Title 49 USC, Chapter 329; Energy Independence and Security Act of 2007, Title 1, Section 102; Average Fuel Economy Standards Passenger Cars and Light Trucks Model Year 2011; Federal Register, Vol. 74, No. 59, March 2009; Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, Final Rule, Federal Register, Vol. 75, No. 88, May 2010; 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards Federal Register, Vol. 77, No. 199, October 2012

	Legislation	Brief description	AEO handling	Basis
D.	Plug-in Electric Vehicle (PEV)Tax Credit	EIEA2008 grants a tax credit of $2,500 for PEVs with at least 4kWh of battery capacity, with larger batteries earning an additional $417 per kWh up to a maximum of $7,500 for light-duty PEVs; The credit applies until 200,000 eligible PEVs are sold	Incorporates the federal tax credits for PEVs	Energy Improvement and Extension Act of 2008, H.R.6049 ARRA09
E.	State Electric, Hybrid, and Alternative Fuel Vehicle Tax and Other Incentives	Approximately 20 states provide tax and other incentives to encourage the purchase of electric, hybrid and/or alternative fuel vehicles. The tax incentives are in the form of income reductions, tax credits, and exemptions. Other incentives include use of HOV lanes and exemptions from emissions inspections and licensing fees. The incentives offered and the mix varies by state. For example, Georgia offers a tax credit of $5,000 for electric vehicles and Oklahoma offers a tax credit of $1,500 for hybrid and alternative fuel vehicles	Does not incorporate state tax and other incentives for hybrid, electric, and other alternative fuel vehicles	State laws in Arizona, Arkansas, California, Colorado, Delaware, Florida, Georgia, Iowa, Kansas, Louisiana, Maine, Maryland, Michigan, New Hampshire, New York, Oklahoma, Pennsylvania, Utah, Virginia, and Washington
F.	Heavy-Duty (HD) National Program; Greenhouse Gas Emissions and Fuel Consumption Standards for Heavy-Duty Vehicles	Requires on-road heavy-duty vehicle manufacturers to produce vehicles that meet a minimum federal average greenhouse gas emission standard, issued by the EPA, for model years 2014-2018; NHTSA established voluntary fuel consumption standards for MY 2014-2015, and mandatory fuel consumption standards for MY 2016 and beyond for onroad heavy-duty trucks and their engines; vocational and combination engines are regulated separately	HD National program standards begin for MY 2014 as set by the GHG emissions portion of the rule with the assumption that the vehicles comply with the voluntary portion of the rule for fuel consumption; The model allows for both the engine and chassis technologies to meet the standards to finalize; CAFE standards are held constant through the end of the projection	Section 202 of the Clean Air Act Title 49 USC, Chapter 32902[k]; Energy Independence and Security Act of 2007, Title 1, Section 102; Federal Register, Vol. 76, No. 179, September 2011

	Legislation	Brief description	AEO handling	Basis
G.	The International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI	Sets limits on sulfur oxides and oxides of nitrogen emissions from ship exhausts and prohibits deliberate emissions of ozone depleting substances. First entered into force on May 19, 2005. New requirements added on January 1, 2015, mandating a maximum of 0.1% sulfur fuel use or exhaust scrubber use in Emission Control Areas (ECA), from a previous 1% limit	MARPOL Annex VI fuel sulfur mandates reflected in domestic and international shipping fuel choices starting in 2015	MARPOL 73/78, (33 U.S.C 1901(a) (4) & (5), 1902(a)(1)&(5), and 1907 (a), as amended by the Maritime Pollution Prevention Act of 2008 (MPPA), Pub.L. 110-280, 122 Stat 2611)

Electric power generation

	Legislation	Brief description	AEO handling	Basis
A.	Clean Air Act Amendments of 1990 (CAAA90)	Established a national limit on electricity generator emissions of sulfur dioxide to be achieved through a cap-and-trade program	Sulfur dioxide cap-and-trade program is explicitly modeled, choosing the optimal mix of options for meeting the national emissions cap	Clean Air Act Amendments of 1990, Title IV, Sections 401 through 406, Sulfur Dioxide Reduction Program, 42 USC7651a through 7651e
		Requires EPA to establish National Ambient Air Quality Standards (NAAQS) for criteria pollutants; Currently there are 2 designation processes underway: 1) for the Sulfur Dioxide (SO2) NAAQS issued in 2010 and 2) for the Ozone NAAQS 2015 issued in 2015; EPA is designating areas for the 2010 SO2 NAAQS in 4 rounds, of which the final three are court-ordered deadlines, with final round ending December 2020; States have until March 2026 to comply; For the Ozone NAAQS the EPA Administrator extended the deadline for final designations until October, 2018; Areas falling into the designation of "moderate" non-attainment have until late 2023 to comply	These standards are not explicitly represented, but the Cross State Air Pollution Rule is incorporated (described below) and was developed to help states meet their NAAQS	Clean Air Act Amendment of 1990, Title I, Sections 108 and 109, National Ambient Air Quality Standards for Ozone, 40 CFR Part 50, Federal Register, Vol 68, No 3, January 8, 2003; National Ambient Air Quality Standards for Particulate Matter, 40 CFR Part 50, Federal Register, Vol 62, No. 138, July 18, 1997
		Requires EPA to develop standards for emissions from new power plants. In October 2015, EPA specified CO2 emission rate standards for four types of new electric generating units: new fossil steam, modified fossil steam, reconstructed coal steam, and new combined-cycle combustion turbines	The AEO2017 assumes that new fossil plants built endogenously must meet the appropriate emission standard; New coal plants must include at least 30% carbon capture and sequestration to achieve the emission target specified; EIA does not represent modified or reconstructed power plants	Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, 80 FR 64509, October 23, 2015
		Requires EPA to require states to establish CO2 standards for existing plants once they are in place for new units; In October 2015, EPA adopted interim and final CO2 emission performance rates for fossil steam and combined cycle plants through the Clean Power Plan (CPP); States can also choose to meet EPA	The AEO2017 assumes that the CPP is implemented at the electricity region level, with states choosing to cooperate within regions, and by meeting the average emission cap covering existing and new sources; In February 2016, the Supreme Court issued a stay on	Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 FR 64661, October 23, 2015

	Legislation	Brief description	AEO handling	Basis
		calculated average emission rates or emission caps, with caps specified for both existing sources only, and existing and new sources	enforcement of the CPP, but no lower court had considered the challenges and there was no previous judgement; The AEO2017 includes a case without the CPP for comparison	
B.	Cross-State Air Pollution Rule (CSAPR)	CSAPR requires states to reduce SO2 and/or NOx emissions from power plants. CSAPR consists of four individual cap-and-trade programs, covering two different SO2 groups, an annual NOx group and a seasonal NOx group; A total of 23 States are subject to annual limits, and 25 States are subject to seasonal limits	Cap-and-trade programs for SO2 and NOX are modeled explicitly, allowing the model to choose the best method for meeting the emission caps	U.S. Environmental Protection Agency, "Cross-State Air Pollution Rule," website epa.gov/air transport. Federal Register, Vol. 70, No. 91 (May 12, 2005), 40 CFR Parts 51, 72, 73, 74, 77, 78 and 96
C.	Mercury and Air Toxics Standards (MATS)	MATS sets standards to reduce air pollution from coal-and oil-fired power plants greater than 25 megawatts; The rule requires plants achieve the maximum achievable control technology for mercury, hydrogen chloride (HCl) and fine particulate matter (PM 2.5)	The EMM assumes that all coal-fired generating plants above 25 megawatts have complied by 2016. Plants are required to reduce mercury emissions by 90 percent relative to uncontrolled levels	U. S. Environmental Protection Agency, "Mercury and Air Toxics Standards," website epa.gov/mats
D.	Energy Policy Act of 1992 (EPACT92)	Created a class of generators referred to as exempt wholesale generators (EWGs), exempt from The Public Utility Holding Company Act of 1935 as long as they sell wholesale power	Represents the development of Exempt Wholesale Generators (EWGs) or what are now referred to as independent power producers (IPPs) in all regions	Energy Policy Act of 1992, Title VII, Electricity, Subtitle A, Exempt Wholesale Generators
E.	The Public Utility Holding Company Act of 1935 (PUHCA)	PUHCA is a federal statue which was enacted to legislate against abusive practices in the utility industry; The act grants power to the U.S. Securities and Exchange Commission (SEC) to oversee and outlaw large holding companies which might otherwise control the provision of electrical service to large regions of the country. It gives the SEC power to approve or deny mergers and acquisitions and, if necessary, force utility companies to dispose of assets or change business practices if the company's structure of activities are not deemed to be in the public interest	It is assumed that holding companies act competitively and do not use their regulated power businesses to cross-subsidize their unregulated businesses	Public Utility Holding Company Act of 1935

	Legislation	Brief description	AEO handling	Basis
F.	FERC Orders 888 and 889	FERC has issued two related rules: Orders 888 and 889, designed to bring low-cost power to consumers through competition, ensure continued reliability in the industry, and provide for open and equitable transmission services by owners of these facilities; Specifically, Order 888 requires open access to the transmission grid currently owned and operated by utilities; The transmission owners must file nondiscriminatory tariffs that offer other suppliers the same services that the owners provide for themselves; Order 888 also allows these utilities to recover stranded costs (investments in generating assets that are unrecoverable due to consumers selecting another supplier); Order 889 requires utilities to implement standards of conduct and an Open Access Same-time Information System (OASIS) through which utilities and non-utilities can receive information regarding the transmission system; Consequently, utilities are expected to functionally or physically unbundle their marketing functions from their transmission functions	These orders are represented in the forecast by assuming that all generators in a given region are able to satisfy load requirements anywhere within the region; Similarly, it is assumed that transactions between regions will occur if the cost differentials between them make it economic to do so	Promoting Wholesale Competition Through Open Access, Non-Discriminatory Transmission Services by Public Utilities; Public Utilities and Transmitting Utilities, ORDER NO. 888 Issued April 24, 1996), 18 CFR Parts 35 and 385, Docket Nos. RM95-8-000 and RM94-7-001. Open Access Same-Time Information System (formerly Real-Time Information Networks) and Standards of Conduct, ORDER NO. 889, (Issued April 24, 1996), 18 CFR Part 37, Docket No. RM95-9-000
G.	New Source Review (NSR)	On August 28, 2003, the EPA issued a final rule defining certain power plant and industrial facility activities as routine maintenance, repair, and replacement, which are not subject to new source review (NSR); As stated by EPA, these changes provide a category of equipment replacement activities that are not subject to major NSR requirements under the routine maintenance, repair, and replacement (RMRR) exclusion;[1] Essentially this means that power plants and industrial facilities engaging in RMRR activities will not have to get preconstruction approval from the state or EPA and will not have to install best available emissions control technologies that might be required if NSR were triggered	It is assumed that coal plants will be able to increase their output as electricity demand increases; Their maximum capacity factor is set at 75%; No increases in the capacity of existing plants is assumed; If further analysis shows that capacity uprates may result from the NSR rule, they will be incorporated in future AEOs; However, at this time, the NSR rule is being contested in the courts	EPA, 40 CFR Parts 51 and 52, Deterioration (PSD) and Non-Replacement Provision of the Vol. 68, No. 207, page 61248, Prevention of Significant Attainment New Source Review (NSR): Equipment Routine Maintenance, Repair and Replacement Exclusion; Final Rule, Federal Register, October 27, 2003

	Legislation	Brief description	AEO handling	Basis
H.	State Renewable Portfolio Standards (RPS) Laws, Mandates, and Goals	Several states have enacted laws requiring that a certain percentage of their generation come from qualifying renewable sources	The AEO reference case represents the Renewable Portfolio Standard (RPS) or substantively similar laws from states with established enforcement provisions for their targets; As described in the Renewable Fuels Module chapter of this document, mandatory targets from the various states are aggregated at the regional level, and achievement of nondiscretionary compliance criteria is evaluated for each region	The states with RPS or other mandates providing quantified projections are detailed in the Legislation and Regulations section of AEO2016
I.	Regional and State Air Emissions Regulations	The Northeast Regional Greenhouse Gas Initiative (RGGI) applies to fossil-fueled power plants over 25 megawatts in the northeastern United States; New Jersey withdrew in 2011, leaving 9 states in the program; The rule caps CO2 emissions and requires they account for CO2 emitted with allowances purchased at auction; In February 2013, program officials announced a tightening of the cap beginning in 2014	The impact of RGGI is included in the EMM, making adjustments when needed to estimate the emissions caps at the regional level used in NEMS; AEO2016 incorporated the revised target beginning in 2014	Regional Greenhouse Gas Initiative Model rule, www.rggi.org
		The California Assembly Bill 32 (AB32) sets GHG reduction goals for 2020 for California at 1990 levels; A cap-and-trade program was designed to enforce the caps; The cap-and-trade program applies to multiple economic sectors including electric power plants, large industrial facilities, suppliers of transportation fuel, and suppliers of natural gas; Emissions resulting from electricity generated outside California but consumed in the state are also subject to the cap	The EMM models the cap-and-trade program explicitly for CO2 for California through an emission constraint that accounts for emissions from the other sectors; Limited banking and borrowing of allowances as well as an allowance reserve and offsets are incorporated as specified in the Bill	California Code of Regulations, Subchapter 10 Climate Change, Article 5, Sections 95800 to 96023, Title 17, "California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms," (Sacramento, CA: July 2011)
		The California Senate Bill 32 (SB32) sets GHG reduction goals for 2030 for California, at 40% below 1990 levels, requiring additional declines from the AB32 goals. Specific programs for meeting these goals have not yet been defined	The AEO2017 assumes the cap-and-trade program developed for AB32 will continue, and sets new annual targets through 2030 to achieve the SB32 goals. After 2030 the target remains flat	California Senate Bill 32, California Global Warming Solutions Act of 2006: emissions limit (September 8, 2016)

	Legislation	Brief description	AEO handling	
J.	Energy Policy Act of 2005	Extended and substantially expanded and modified the Production Tax Credit, originally created by EPACT1992	EPACT2005 also adds a PTC for up to 6,000 megawatts of new nuclear capacity and a $1.3 billion investment tax credit for new or repowered coal-fired power projects; The tax credits for renewables, nuclear and coal projects are explicitly modeled as specified in the law and subsequent amendments; Because the tax credits for new coal projects have been fully allocated, the EMM does not assume future coal capacity will receive any tax credits	Energy Policy Act of 2005, Sections 1301, 1306, and 1307
K.	American Recovery and Reinvestment Act of 2009 (ARRA09)	ARRA09 provides $4.5 billion for smart grid demonstration projects; These generally include a wide array of measurement, communications, and control equipment employed throughout the transmission and distribution system that will enable real-time monitoring of the production, flow, and use of power from generator to consumer	In the electricity module, it was assumed that line losses would fall slightly, peak loads would fall as customers shifted their usage patterns, and customers would be more responsive to pricing signals	American Recovery and Reinvestment Act of 2009, Title IV, "Energy and Water Development", Section 405
		ARRA09 provides $800 million to fund projects under the Clean Coal Power Initiative program focusing on capture and sequestration of greenhouse gases	It was assumed that one gigawatt of new coal with sequestration capacity would come online by 2018	American Recovery and Reinvestment Act of 2009, Title IV, "Energy and Water Development"
L.	Consolidated Appropriations Act , 2016	As part of this Act, Congress extended the qualifying deadlines for the production tax credit (PTC) and investment tax credit (ITC) for renewable generation technologies. The deadline for PTC-eligible technologies to receive the full production credit was extended by two years. Wind technologies are eligible to receive the PTC beyond the two-year extension, but the value of the PTC declines gradually over time before final expiration. This extension is unlike the treatment in previous years, in which the tax credit maintained a constant inflation-adjusted value. The five-year ITC extension for solar projects also includes a gradual reduction in the value of the credit, as well as a provision that allows it to begin when construction starts	AEO2017 explicitly models the revised dates for these tax credits	H.R.2029 - Consolidated Appropriations Act, 2016, Public Law 114-113, Sec. 187, December 2015

Oil and gas supply

	Legislation	Brief description	AEO handling	Basis
A.	The Outer Continental Shelf Deep Water Royalty Relief Act (DWRRA)	Mandates that all tracts offered by November 28, 2000, in deep water in certain areas of the Gulf of Mexico must be offered under the new bidding system permitted by the DWRRA; The Secretary of the Interior must offer such tracts with a specific minimum royalty suspension volume based on water depth	Incorporates royalty rates based on water depth	43 USC SS 1331-1356 (2002)
B.	Energy Policy and Conservation Act Amendments of 2000	Required the USGS to inventory oil and gas resources beneath federal lands	To date, the Rocky Mountain oil and gas resource inventory has been completed by the USGS; The results of this inventory have been incorporated in the technically recoverable oil and gas resource volumes used for the Rocky Mountain region	Scientific Inventory of Onshore Federal Lands; Oil and Gas Resources and Reserves and the Extent and Nature of Restrictions or Impediments to their Development; The Paradox/San Juan, Uinta/ Piceance, Greater Green River, and Powder River Basins and the Montana Thrust Belt; Prepared by the Departments of Interior, Agriculture and Energy, January 2003
C.	Section 29 Tax Credit for Nonconventional Fuels	The Alternative Fuel Production Credit (Section 29 of the IRC) applies to qualified nonconventional fuels from wells drilled or facilities placed in service between January 1, 1980 and December 31, 1992; Gas production from qualifying wells could receive a $3 (1979 constant dollars) per barrel of oil equiva-lent credit on volumes produced through December 31, 2002; The qualified fuels are: oil produced from shale and tar sands; gas from geopressurized brine, Devonian shale, coal seams, tight formations, and biomass; liquid, gaseous, or solid synthetic fuels produced from coal; fuel from qualified processed formations or biomass; and steam from agricultural products	The Section 29 Tax Credit expired on December 31, 2002, and it is not considered in new production decisions; However, the effect of these credits is implicitly included in the parameters that are derived from historical data reflecting such credits	Alternative Fuel Production Credit (Section 29 of the Internal Revenue Code), initially established in the Windfall Profit Tax of 1980
D.	Energy Policy Act of 2005	Established a program to provide grants to enhance oil and gas recovery through CO2 injection	Additional oil resources were added to account for increased use of CO2-enhanced oil recovery	Title III, Section 354 of the Energy Policy Act of 2005

Natural gas transmission and distribution

	Legislation	Brief description	AEO handling	Basis
A.	Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 and other previous laws and regulations on pipeline safety	Provides for enhanced safety, reliability and environmental protection in the transportation of energy products by pipeline	Costs associated with previously imposed pipeline safety laws are assumed to already be reflected in historical capital and operating cost data used in the model; Any additional costs associated with more recent legislation are assumed to be a small percentage of total pipeline costs and are partially offset by benefits gained through reducing pipeline leakage	P.L. 112-90, 125 Stat. 1904
B.	Energy Policy Act of 2005	Allowed natural gas storage facilities to charge market-based rates if it was believed they would not exert market power	Storage rates are allowed to vary from regulation-based rates depending on market conditions	Title III, Section 312 of the Energy Policy Act of 2005
C.	Federal Motor Fuels Excise Taxes for Compressed Natural Gas and Liquefied Natural Gas in Vehicles; Liquefied natural gas tax changed as of 1/1/16 under the Surface Transportation and Veterans Health Care Choice Improvement Act of 2015 (H.R. 3236)	Taxes are levied on each gasoline-gallon equivalent of compressed natural gas and each diesel-gallon equivalent of liquefied natural gas used in vehicles and ships	Current federal motor fuels excise taxes on natural gas fuel for vehicles and ships are included in retail prices and are assumed to be extended indefinitely in nominal dollars	26 USC 4041
D.	State Motor Fuels Taxes for Compressed Natural Gas and Liquefied Natural Gas in Vehicles	Taxes are levied on each gallon, gasoline-gallon equivalent, or diesel-gallon equivalent of natural gas for vehicles	Current state motor fuels excise taxes on natural gas fuel for vehicles are included in retail prices and are assumed to be extended indefinitely in nominal rates	Determined by review of existing state laws

Liquid fuels market

	Legislation	Brief description	AEO handling	Basics
A.	Ultra-Low-Sulfur Diesel (ULSD) regulations under the Clean Air Act Amendment of 1990	Since mid-2012, all diesel for domestic use (highway, non-road, locomotive, marine) may contain at most 15 ppm sulfur	Reflected in diesel specifications	40 CFR Parts 69, 80, 86, 89, 94, 1039, 1048, 1065, and 1068
B.	Mobile Source Air Toxics (MSAT) Controls Under the Clean Air Act Amendment of 1990	Establishes a list of 21 substances emitted from motor vehicles and known to cause serious human health effects, particularly benzene, formaldehyde, 1.3 butadiene, acetaldehyde, diesel exhaust organic gases, and diesel particulate matter; Establishes anti-backsliding and anti- dumping rules for gasoline	Modeled by updating gasoline specifications to most current EPA gasoline survey data (2005) representing anti-backsliding requirements	40 CFR Parts 60 and 86
C.	Low-Sulfur Gasoline Regulations Under the Clean Air Act Amendment of 1990	Gasoline must contain an average of 30 ppm sulfur or less by 2006; Small refiners may be permitted to delay compliance until 2008	Reflected in gasoline specifications	40 CFR Parts 80, 85 and 86
D.	Tier 3 Vehicle Emission and Fuel Standards Program	Gasoline must contain an average of 10 ppm sulfur or less by January 1, 2017; Small refiners may be permitted a 3 year delay	Reflected in gasoline specifications beginning in 2017	40 CFR Parts 79, 80, 85, et. al., final rule: http://www.gpo.gov/fdsys/pkg/FR-2014-04-28/pdf/2014-06954.pdf
E.	MTBE Bans in 25 states	25 states ban the use of MTBE in gasoline by 2007	Ethanol assumed to be the oxygenate of choice for all motor gasoline blends	State laws in Arizona, California, Colorado, Connecticut, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Rhode Island, South Dakota, Vermont, Washington, and Wisconsin
F.	Regional Clean Fuel Formations	States with air quality problems can specify alternative gasoline or diesel formulations with EPA's permission; California has long had authority to set its own fuel standards	Reflected in PADD-level gasoline and diesel specifications	State implementation plans required by the Clean Air Act Amendments of 1990, as approved by EPA
G.	Federal Motor Fuels Excise Taxes	Taxes are levied on each gallon of transportation fuels to fund infrastructure and general revenue; These taxes are set to expire at various times in the future but are expected to be renewed, as they have been in the past	Gasoline, diesel, and ethanol blend tax rates are included in end-use prices and are assumed to be extended indefinitely at current nominal rates	26 USC 4041 Extended by American Jobs Creation Act of 2004

	Legislation	Brief description	AEO handling	Basics
H.	State Motor Fuel Taxes	Taxes are levied on each gallon of transportation fuels; The assumption that state taxes will increase at the rate of inflation supports an implied need for additional highway revenues as driving increases	Gasoline and diesel rates are included in end-use prices and are assumed to be extended indefinitely in real terms (to keep pace with inflation)	Determined by review of existing state laws performed semi-annually by EIA's Office of Energy Statistics
I.	Diesel Excise Taxes	Phases out the 4.3 cents excise tax on railroads between 2005 and 2007	Modeled by phasing out	American Jobs Creation Act of 2004, Section 241
J. Energy Policy Act of 2005 (EPACT05)				
	a. Ethanol/biodiesel tax credit	Petroleum product blenders may claim tax credits for blending ethanol into gasoline and for blending biodiesel into diesel fuel or heating oil; The credits may be claimed against the federal motor fuels excise tax or the income tax; Most recent tax credits are $1.01 per gallon of cellulosic ethanol, and $1.00 per gallon of biodiesel; Both tax credits expire after 2016	The tax credits are applied against the production costs of the products into which they are blended; Ethanol is used in gasoline and E85; Biodiesel is assumed to be blended into highway diesel, and nonroad diesel or heating oil	26 USC 40, 26 USC 6426, and 26 USC40A; Tax credits extended through December 31, 2016 by Public Law 114-113)
	b. Renewable Fuel Standard (RFS)	This section has largely been redefined by EISA07 (see below); however, EPA rulemaking completed for this law was assumed to contain guiding principles of the rules and administration of EISA07		Energy Policy Act of 2005, Section 1501
	c. Elimination of oxygen content requirement in reformulated gasoline	Removes the 2% oxygen requirement for reformulated gasoline (RFG) nationwide	Oxygenate waiver already an option of the model; MTBE was phased out in 2006 resulting from the petroleum industry's decision to discontinue use	Energy Policy Act of 2005, Section 1504
	d. Coal gasification provisions	Investment tax credit program for qualifying advanced clean coal projects including Coal-to-Liquids Projects	Two CTL units are available to build with lower capital costs reflecting the provision's funding	Energy Policy Act of 2005, Section 1307

Legislation		Brief description	AEO handling	Basics
K. Energy Independence and Security Act of 2007 (EISA07)				
	a. Renewable Fuel Standard (RFS)	Requires the use of 36 billion gallons of ethanol per year by 2022, with corn ethanol limited to 15 billion gallons; Any other biofuel may be used to fulfill the balance of the mandate, but the balance must include 16 billion gallons per year of cellulosic biofuel by 2022 and 1 billion gallons per year of biodiesel by 2012	The RFS is included in AEO2017, however it is assumed that the schedule for cellulosic biofuel is adjusted downward consistent with waiver provisions contained in the law	40 CFR Part 80, Subpart M; AEO2016: "RFS Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017," page 4/100, https://www.gpo.gov/fdsys/pkg/FR-2015-12-14/pdf/2015-30893.pdf
L.	State Heating Oil Mandates	A number of Northeastern states passed legislation that reduces the maximum sulfur content of heating oil to between 15 and 50 ppm in different phases through 2016	All state regulations included as legislated in AEO2014. 2013 EIA heating oil consumption data is used to calculate respective state Census Division shares for new consumption of low sulfur diesel as heating oil	Vermont Energy Act of 2011, Maine State Legislature HP1160, NJ State Department of Environmental Protection, Amendment N.J.A.C. 7:27-9.2, New York State Senate Bill 51145C
M.	California Low Carbon Fuel Standard (LCFS)	California passed legislation which is designed to reduce the Carbon Intensity (CI) of motor gasoline and diesel fuels sold in California by 10 percent between 2012 and 2020 through the increased sale of alternative "low-carbon" fuels	The LCFS is included in AEO2017 as legislated for gasoline and diesel fuel sold in California, and for other regulated fuels	California Air Resources Board, "Final Regulation Order: Subarticle 7. Low Carbon Fuel Standard."
N.	California Assembly Bill 32 (AB32)	The California Assembly Bill 32 (AB32), the Global Warming Solutions Act of 2006, authorized the California Air Resources Board (CARB) to set GHG reduction goals for 2020 for California; A cap-and-trade program was designed to enforce the caps; The cap-and-trade program applies to multiple economic sectors including electric power plants, large industrial facilities, suppliers of natural gas; Emissions resulting from electricity generated outside California but consumed in the State are also subject to the cap	The AB32 cap-and-trade was more fully implemented in AEO2013, adding industrial facilities, refineries, fuel providers, and non-CO2 GHG emissions to the representation already in the electrical power sector of NEMS; Also, limited banking and borrowing, as well as an allowance reserve and offset purchases, were modeled, providing some compliance flexibility and cost containment	California Code of Regulations, Subchapter 10 Climate Change, Article 5, Sections 95800 to 96023, Title 17, "California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms," (Sacramento, CA: July 2011)

	Legislation	Brief description	AEO handling	Basics
O.	EPA ETS Waiver	EPA approved two waivers for the use of ethanol motor gasoline blends of up to 15 percent in vehicles 2001 and newer	These two waivers were included and modeled in AEO2013 (and remain in AEO2017) based on forecasted vehicle fleets and potential infrastructure and liability setbacks	EPA–HQ–OAR–2009–0211; FRL–9215–5, EPA–HQ– OAR–2009–0211; FRL–9258–6
P.	US Department of commerce, Bureau of Industry and Security (BIS): clarification on the export of lease condensate	Under 754.2(a), "lease condensate that has been processed through a crude oil distillate tower is not crude oil but a petroleum product" which have few export restrictions	Processed API 50+ crude is assumed to be processed condensate, and is allowed to be exported	See FAQ#3 under the heading "FAQs – Crude Oil and Petroleum Products December 30, 2014," https://www.bis.doc.gov/index.php/policy-guidance/deemed-exports/deemed-exports-faqs
Q.	US Congress, "H.R. 1314 – Bipartisan Budget Act of 2015," Title IV – Strategic Petroleum Reserve, Sec. 401-403, 114th Congress (2015-2016)	Under Sec. 401-403, requires a test drawdown, actual drawdown, and sale of crude from the Strategic Petroleum Reserve over FY2018 – FY2025	Explicitly represents the crude withdrawals from the Strategic Petroleum Reserve (SPR) as specified by the Act	https://www.congress.gov/bill/114th-congress/house-bill/1314/text#toc-H2D8D609ED2A3417887CC3EAF49A81E15
R.	US Congress, "H.R. 22 – FAST Act," Sec. 32204, Strategic Petroleum Reserve drawdown and sale, 114th Congress (2015-2016)	Under Sec. 32204, requires drawdown and sale of crude from the Strategic Petroleum Reserve over a specified timeframe	Explicitly represents the crude withdrawals from the Strategic Petroleum Reserve (SPR) as specified by the Act	https://www.congress.gov/bill/114th-congress/house-bill/22/text
S.	US Congress, "H.R. 2029 – Consolidated Appropriations Act 2016," Division O – Other matters, Title I – Oil Exports, Safety Valve, and Maritime Security, 114th Congress (2015-2016)	Title 1, Sec. 101 ends the ban on U.S. crude oil exports; however, under extenuating circumstances, the President may restrict U.S. crude oil exports for no more than 1 year	Any crude produced in the U.S. is allowed to be exported	https://www.congress.gov/bill/114th-congress/house-bill/2029

Source: U.S. Energy Information Administration, Office of Energy Analysis.